What is claimed is:

1. Apparatus for dispensing fluids comprising:

a pump assembly having a reciprocating plunger for pumping fluids, said plunger being rotationally threaded into a locked position and rotationally unthreaded to permit reciprocation; and

apparatus selectively locking and unlocking said plunger to permit reciprocation, said selective locking apparatus requiring displacement other than rotational displacement substantially simultaneously with rotational movement of said plunger to enable said plunger to be unthreaded to permit reciprocation.

2. Apparatus as claimed in claim 1 wherein:

said pump assembly comprises a base into which said plunger is reciprocated, said plunger being threaded into said base to said locked position;

said selective locking apparatus comprises first and second elements, each connected to one of said plunger and base; and

said first and second elements being displaceable between a first position permitting movement of said plunger substantially only toward said locked position and a second position permitting movement of said plunger toward said unlocked position.

3. Apparatus as claimed in claim 2 wherein said first element comprises a ratchet and said second element comprises at least one pawl flexibly engaging said ratchet in said first position.

4. Apparatus as claimed in claim 3 wherein said pawl comprises a flexible tab projecting toward said ratchet.

5. Apparatus as claimed in claim 2 wherein:

said first element is connected to one of said base and said plunger, said first element comprising a first ring having a plurality of recesses distributed around its circumference; and

said second element is connected to the other of said base and said plunger, said second element comprising a second ring concentric with and rotatable relative to said first ring, and having a plurality of tabs; and

said rings being axially displaceable relative to one another so that said tabs radially extend into said recesses when said rings are in said first position and are clear of said recesses in said second position.

6. Apparatus as claimed in claim 5 wherein said tabs extend in a non-radial direction and are flexibly biased into said recesses to permit relative rotation of said rings only in one direction when said rings are in said first position.

7. Apparatus as in claim 6 wherein said tabs comprise flexible elements integral with said second ring and formed to extend into said recesses.

8. Apparatus as claimed in claim 5 further comprising at least one spring for yieldably biasing said rings into said first position.

9. Apparatus as claimed in claim 8 wherein said spring comprises a pair of leaf springs positioned on one of said rings and abutting against one of the plunger and base to bias said rings into said first position as said plunger is threaded into said base.

10. Apparatus as claimed in claim 5 wherein said locking apparatus further comprises an operator manipulated element for applying movement to one of said rings to displace said rings into the second position.

11. Apparatus as claimed in claim 10 wherein:

said first ring is fixed to said base; and

said second ring is connected to said plunger to permit limited displacement in the direction of the plunger reciprocation thereby axially displacing said rings between said first and second positions.

12. Apparatus as claimed in claim 11 wherein:

said plunger comprises a cover in which said second ring is received, said cover having a plurality of elongated openings extending in the direction of displacement of said second ring;

said second ring further comprises arms extending through said elongated openings and connected to said operator manipulating element; and

said plunger further comprises elements for retaining said arms in said elongated openings.

13. Apparatus as claimed in claim 12 wherein said elongated openings are open-ended notches in said cover receiving said arms and said retaining elements comprises inwardly directed projections at the open end of said notches for permitting said arms to be snapped into said notches.

14. Apparatus as claimed in claim 13 further comprising at least one spring for axially biasing said second ring toward the first position of said rings.

15. Apparatus as claimed in claim 14 wherein said spring comprises a plurality of leaf springs connected to said second ring and abutting said plunger cover.

16. Apparatus as claimed in claim 12 wherein said operator manipulated element comprises a plurality of pads fixed to said arms radially outward from said plunger for

permitting operator manipulation simultaneously with the unthreading of said plunger from said base.

17. Apparatus as claimed in claim 12 wherein said operator manipulated element comprises an actuation ring fixed to said arms radially outward therefrom for operator manipulation simultaneously with the unthreading of said plunger from said base.

18. Apparatus as claimed in claim 5 wherein:

said first ring is fixed to said base;

said second ring is connected to said base for limited axial movement between an upper and lower position relative to said base in the direction of plunger; and

said apparatus further comprises a dog clutch between said plunger and said second ring, said dog clutch being engageable when said plunger is threaded into said base and said second ring is in its upper position and disengageable when said second ring is in its lower position thereby permitting said plunger to be unthreaded relative to said base.

19. Apparatus as claimed in claim 18 further comprising at least one spring for axially biasing said second ring to its upper position.

20. Apparatus as claimed in claim 19 wherein said biasing spring comprises a plurality of leaf springs fixed to said second ring and abutting said base to urge said second ring to its upper position.

21. Apparatus as claimed in claim 18 further comprising an actuation ring radially outward from said plunger and second ring and connected to said second ring for operator manipulation.

22. Apparatus as claimed in claim 2 wherein:

said plunger has an upper end to its stroke where it has a maximum extension from said base;

said plunger further comprises locking elements yieldably urged in an outward direction so as to prevent said plunger from downward movement from substantially the upper end of its stroke; and

said locking elements requiring inward movement simultaneously with downward movement of said plunger to permit reciprocation from the upper end of its stroke.

23. Apparatus as claimed in claim 22 wherein said locking elements comprises a plurality of leaf springs fixed to said plunger so that when said leaf springs are compressed radially inward, reciprocation of said plunger into said base is permitted and when said plunger is at the top of its stroke said leaf springs extend radially outward to prevent reciprocation of said plunger into said base.

24. Apparatus as claimed in claim 2 wherein:

said first element comprises a flange fixed to one of said plunger and said base; and

said second element comprises a plurality of dogs pivotally connected to the other of said plunger and base for embracing said flange in a locked position to prevent movement of said plunger away from its locked position and pivotable to a position standing clear of said flange in an unlocked condition to permit movement of said plunger to its unlocked position.

25. Apparatus as claimed in claim 24 further comprising at least one spring for biasing said dogs into said locked position.

26. Apparatus as claimed in claim 25 wherein:

said flange is fixed to said base;

said plunger comprises central pumping element and a cover in which said second element is received; and

said second element comprises a ring embracing said central pumping element, each of said dogs being pivotally connected to said ring and having an extension beyond the pivot of said dogs and a button on said extension, said cover having an opening for receiving each button, whereby an operator can press said button radially inward to cause said dogs to stand clear of said flange and permit said plunger to be unthreaded.

27. Apparatus as claimed in claim 26 wherein said dogs, ring, extensions and buttons are made from a unitary plastic material formed to bias the dogs to a locking position.

28. Apparatus for dispensing fluids comprising:

a pump assembly having a reciprocating plunger for pumping fluids; and

a valve for selectively blocking and permitting flow from said pump assembly, said selective flow valve being displaceable in a predetermined direction between a first position blocking and a second position permitting flow, said selective flow valve having a lock requiring substantially simultaneous displacement in a direction other than said predetermined direction to permit displacement to said second position to permit flow.

29. Apparatus as claimed in claim 28 wherein:

said reciprocating plunger comprises a pumping element and a cover incorporating a fluid outlet passage;

said selective flow valve comprises a valve element carried by said cover and displaceable in said predetermined direction between a first position blocking flow and a second position permitting flow; and

said locks compress an arm connected to said valve element to enable selective movement in said predetermined direction towards the second position upon simultaneous displacement in a direction different than said predetermined direction of said valve element.

30. Apparatus as claimed in claim 29 wherein:

said valve element is rotatable between said first and second positions; and

said selective movement arm is displaceable in a plane substantially radial relative to the rotation of said valve element.

31. Apparatus as claimed in claim 30 wherein said selective movement arm comprises:

an arm external to said cover and connected to said valve element; and

ratchets on said cover and a pawl on said arm engageable with said ratchets to permit rotation of said arm only toward the first position of said valve, said arm being displaceable to move said pawl clear of said ratchets to permit rotation of said arm toward the second position of said valve.

32. Apparatus as claimed in claim 31 further comprising at least one spring for yieldably biasing said arm towards the first position of said valve.

33. Apparatus as claimed in claim 32 wherein said yieldable biasing spring comprises a flexible leaf spring fixed to said arm and abutting said cover to urge said arm towards the first position of said valve.